Notice of Allowability	Application No.	Applicant(s)	
	10/010,572	CAVANAGH ET AL.	
	Examiner	Art Unit	
	Ayal I. Sharon	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Amendment filed 9/18/2006*.

2. ☒ The allowed claim(s) is/are *1-21,23-30,32 and 33*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Introduction

1. Claims 1-21, 23-30, and 32-33 of U.S. Application 10/010,572, originally filed on 11/9/2001 are presented for examination.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
3. Authorization for this examiner's amendment was given in telephone interviews with Mr. Lawrence Merkel, Reg. No. 41,191 on 11/10/2006 and 11/13/2006.
4. The claims have been amended in order to overcome issues not addressed in the previous office actions:
    a. 35 U.S.C. § 101 issues caused by lack of concrete, useful, tangible results. The claims have been amended to produce such results.
    b. Ambiguity of the phrase "is configured to-" in system claims. This phrase has been replaced with the phrase "during use."
5. Claims 1-7, 9-11, 13-15, 20-21, 24, 30, and 32-33 have been amended.
6. Amended Claim 1 is as follows:

1. (Currently Amended) A distributed simulation ~~system~~ method comprising a plurality of nodes,

wherein each node of the plurality of nodes ~~is configured to~~ simulates a different portion of a system under test using a simulator program ~~configured to~~ that performs a simulation as a series of timesteps, and

wherein each timestep includes at least a first phase and a second phase, and wherein the plurality of nodes ~~are configured to~~ enter each phase concurrently and exit each phase concurrently, and

wherein the plurality of nodes ~~are configured to~~ exit each phase in response to a command indicating that the phase is complete, and

wherein each node of the plurality of nodes ~~is configured not to~~ causes the simulator program to not evaluate a model of the different portion of the system under test during the first phase even if one or more commands are received by that node during the first phase, and

wherein each node of the plurality of nodes ~~is configured to~~ causes the simulator program to evaluate the model during the second phase in response to receiving a command during the second phase, the command including one or more signal values for signals of the model,

wherein the simulation of the system under test produces a result that includes signal values of the system under test at each timestep in the series of timesteps, and logs the result into a file.

7. Amended Claim 2 is as follows:

2. (Original) The distributed simulation system as recited in claim 1 wherein each node of the plurality of nodes ~~is configured not to~~ causes the simulator program to not evaluate the model during the second phase if the signal values in the command received by that node are the same as the current values of the signals.

8. Amended Claim 3 is as follows:

3. (Original) The distributed simulation system as recited in claim 1 wherein each node of the plurality of nodes ~~is configured~~, if one or more output signals of the model change in response to evaluating the model, ~~to~~ transmits a command including at least the signal values of the output signals that change.

9. Amended Claim 4 is as follows:

> 4. (Original) The distributed simulation system as recited in claim 1 wherein _each node of the plurality of nodes ~~is configured to~~ causes the simulator program to evaluate the model two or more times during the second phase in response to two or more commands including signal values.

10. Amended Claim 5 is as follows:

> 5. (Original) The distributed simulation system as recited in claim 1 further comprising a hub coupled to the plurality of nodes, wherein _the hub ~~is configured to~~ receives at least one command from each node during the first phase prior to transmitting commands to the plurality of nodes during the first phase.

11. Amended Claim 6 is as follows:

> 6. (Original) The distributed simulation system as recited in claim 5 wherein _each node of the plurality of nodes ~~is configured to~~ transmits a no-operation command to the hub if that node has no other command to transmit.

12. Amended Claim 7 is as follows:

> 7. (Original) The distributed simulation system as recited in claim 5 wherein _the hub ~~is configured to~~ transmits at least one command to each node of the plurality of nodes.

13. Amended Claim 9 is as follows:

> 9. (Original) The distributed simulation system as recited in claim 1 further comprising a hub coupled to the plurality of nodes, wherein _the hub ~~is configured to~~ receives at least one command from each node during the second phase prior to transmitting commands to the plurality of nodes during the second phase.

14. Amended Claim 10 is as follows:

> 10. (Original) The distributed simulation system as recited in claim 9 wherein _each node of the plurality of nodes ~~is configured to~~ transmits a no-operation command to the hub if that node has no other command to transmit.

15. Amended Claim 11 is as follows:

> 11. (Original) The distributed simulation system as recited in claim 9 wherein the hub is ~~configured to~~ transmits at least one command to each node of the plurality of nodes.

16. Amended Claim 13 is as follows:

> 13. (Original) The distributed simulation system as recited in claim 1 further comprising a hub coupled to the plurality of nodes, and ~~configured to~~ that signals an end of each of the first phase and the second phase.

17. Amended Claim 14 is as follows:

> 14. (Original) The distributed simulation system as recited in claim 13 wherein the hub ~~is configured to~~ receives at least one command from each node prior to transmitting commands to the plurality of nodes, and wherein the hub ~~is configured to~~ signals an end to one of the first phase or the second phase responsive to receiving a no-operation command from each of the plurality of nodes.

18. Amended Claim 15 is as follows:

> 15. (Currently Amended) A computer readable medium storing instructions which,
>
> when executed on a computer, process a first one or more commands received during a first phase of a timestep without causing a simulator program to evaluate a model, and cause the simulator program to evaluate the model during a second phase of the timestep in response to receiving a second command including one or more signal values for signals of the model,
>
> wherein the second command is received during the second phase of the timestep, and wherein the instructions, when executed, exit one of the first phase and second phase in response to receiving a third command indicating that the phase is complete,
>
> <u>wherein the model represents a portion of a system under test and</u>
>
> <u>wherein the simulation of the system under test produces a result that includes signal values of the system under test at the timestep, and logs the result into a file</u>.

19. Amended Claim 20 is as follows:

20. (Previously Presented) The computer readable medium as recited in claim 15, wherein returns to the simulator program in response to a third command indicating an end of the first or second phase. ~~, is configured to returns to the simulator program.~~

20. Amended Claim 21 is as follows:

21. (Currently Amended) A computer readable medium storing instructions which,

when executed on a computer, signal an end of either a first phase or a second phase of a timestep in a distributed simulation system by transmitting a predefined command indicating an end of the first phase or the second phase to each of a plurality of nodes in the distributed simulation system, and

wherein the instructions, when executed on the computer, signal the end of either the first phase or the second phase responsive to receiving a no-operation packet from each of the plurality of nodes subsequent to transmitting a command other than a no-operation packet to at least one of the plurality of nodes,

wherein the distributed simulation system simulates a system under test, producing a result that includes signal values of the system under test at the timestep, and logs the result into a file.

21. Amended Claim 24 is as follows:

24. (Currently Amended) A method comprising:

receiving a first one or more commands in a node of a distributed simulation system during a first phase of a timestep;

processing the first one or more commands without causing a simulator program to evaluate a model;

receiving a second command during a second phase of the timestep;

processing the second command including causing the simulator program to evaluate the model if the second command includes one or more signal values for signals of the model;

receiving a third command indicating that one of the first phase and the second phase is complete; and

exiting the indicated phase in response to the third command,

wherein the distributed simulation system simulates a system under test, producing a result that includes signal values of the system under test at the timestep, and logs the result into a file.

22. Amended Claim 30 is as follows:

30. (Previously Presented) A method comprising:

signaling an end of a first phase of a timestep in a distributed simulation system by a hub of the distributed simulation system, the signaling including transmitting a predefined command to each of a plurality of nodes in the distributed simulation system,

wherein signaling the end of the first phase is responsive to receiving a no-operation packet from each of the plurality of nodes subsequent to transmitting a command other than a no-operation packet to at least one of the plurality of nodes; and

signaling an end of a second phase of a timestep in a distributed simulation system by the hub, the signaling including transmitting a predefined command to each of the plurality of nodes in the distributed simulation system,

wherein the distributed simulation system simulates a system under test, producing a result that includes signal values of the system under test at the timestep, and logs the result into a file.

23. Amended Claim 32 is as follows:

32. (Original) The method as recited in claim 30 wherein signaling the end of the second phase is responsive to receiving a no-operation packet from each of the plurality of nodes subsequent to transmitting a command other than a no-operation packet to at least one of the plurality of nodes.

24. Amended Claim 33 is as follows:

33. (Original) A distributed simulation system comprising a plurality of nodes,

wherein each node of the plurality of nodes ~~is configured to~~ simulate a different portion of a system under test using a simulator program ~~configured to~~ perform a simulation as a series of timesteps, and

wherein the plurality of nodes ~~are configured to~~ communicate using commands, and a first node of the plurality of nodes ~~is configured to~~ cause the simulator program to evaluate the model in response to receiving a first command including one or more signal values for signals of the model during a first timestep, and

wherein the first node ~~is configured to~~ cause the simulator program to re-evaluate the model in response to receiving a second command including one or more signal values for signals of the model during the first timestep

wherein the distributed simulation system simulates a system under test, producing a result that includes signal values of the system under test at the timestep, and logs the result into a file.

Examiner's Statement of Reasons for Allowance

25. Claims 1-21, 23-30, and 32-33 are allowed.

26. The following is an examiner's statement of reasons for allowance for claims 1-21, 23-30, and 32-33. Applicants' arguments filed 9/18/2006 are persuasive. All previously applied rejections have been withdrawn.

27. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ayal I. Sharon whose telephone number is (571) 272-3714. The examiner can normally be reached on Monday through Thursday, and the first Friday of a biweek, 8:30 am – 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached at (571) 272-3753.

Any response to this office action should be faxed to (571) 273-8300, or mailed to:

USPTO
P.O. Box 1450
Alexandria, VA 22313-1450

or hand carried to:

USPTO
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center 2100 Receptionist, whose telephone number is (571) 272-2100.

Ayal I. Sharon
Art Unit 2123
November 13, 2006

PAUL RODRIGUEZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

11/17/06